KONINKLIJKE NEDERLANDSE
AKADEMIE VAN WETENSCHAPPEN

Dr A.H. Heineken Prize for Environmental Sciences awarded to Professor David Tilman of the University of Minnesota, USA

Your Royal Highness,

Members of the Board of the Dr H.P. Heineken Foundation

and the Alfred Heineken Fondsen Foundation,

in particular their chairwoman, Mrs. De Carvalho,

Esteemed laureates,

Ladies and gentlemen,

Professor Tilman,

The jury for the Heineken Prize for Environmental Sciences has unanimously decided that the 2010 prize will be awarded to you for your research on biodiversity and its implications. You are currently the most cited researcher worldwide in the field of ecology and environmental science. This prize acknowledges the great influence of your work.

Even early on in your career, you stood out as a very promising ecologist. You showed that it is possible both to develop new theory *and* test its predictions in innovative experimental research, which is a rare combination. By the late 1970s, you had already laid out a new approach to modeling and testing resource competition between algae that is still considered the standard model today. In the early 1980s, you chose to extend your work beyond aquatic ecology to explore the scope of your resource competition models in terrestrial ecosystems. You initiated large-scale field experiments with plants in the mixed grass prairies of Cedar Creek Natural History Area, north of the University of Minnesota – a field site and a university to which you have remained loyal ever since, despite very prestigious offers from elsewhere.

In the 1980s, you also started novel work on vegetation succession. Your approach to understanding vegetation succession through trade-offs between the colonization ability and competitive ability of species is now one of the predominant models in this field. Interestingly, this was an alternative model that you developed *after* you found that your original nutrient-light competition trade-off did not apply. It exemplifies an interesting personal characteristic that many can learn from: you have always regarded your work as an inspiration for others to improve upon or invalidate, rather than as the final answer.

In the early 1990s, you embarked on a new stage in your career, and began using your knowledge of the *causes* of biodiversity of communities to understand the *implications* of biodiversity for the functioning of ecosystems. You developed into one of the leaders of the emerging integrated field of biodiversity and ecosystem functioning research. Your work became increasingly bound up with nature and environmental conservation. You clearly saw that if governments were to be persuaded of the importance of preserving biodiversity, it would certainly help to assign it some kind of economic utility, for example a contribution to

agricultural production or mediation of the effects of global change. You started field experiments to explore the relationship between biodiversity and ecosystem functioning on a scale not seen before in the field of ecology. A typical experiment would involve hundreds of experimental plots extending over more than a square kilometer, with over fifty students on summer jobs weeding and analyzing them. This level of ambition and possible scale set a new standard in the field. A good example of your scientific creativity was shown when a major drought hit one of your experiments and killed off the biomass in many plots. Where others would have terminated the experiment and declare it failed, you showed that the plots that contained more species were more resistant to species loss and quicker to recover from it, making a good case for how high biodiversity improves ecosystem resistance to perturbations.

In the past decade, you extended your work on biodiversity and ecosystem functioning to address the consequences of changes in global land use and carbon budgets. You became an active participant in the discussion on using biofuels as an alternative form of energy. While many commentators today are concerned that this may compete with food supplies, you showed that biomass from natural grasslands is a viable energy source and much more efficient than growing major crops such as maize and soybean. You also showed that nutrient-poor grassland can be an important sink for fixing atmospheric carbon, and thus play a role in mediating the effects of elevated CO2 due to fossil-fuel burning.

You have authored over 200 scientific publications, including 45 articles in *Nature* and *Science* and six books. Instead of following the lead in popular fields, you have yourself taken the lead in creating new ones.

Professor Tilman, on behalf of the jury for the Heineken Prize for Environmental Sciences, it is my pleasure to award you this prize.